

## ABSTRACT

This invention provides methods for determining the genotype of organisms by hybridization analysis and, more specifically, to establishing the relatedness of individual organisms within a species. The present invention provides addressable arrays, comprising diversity panels of nucleic acid molecules, in which the molecules on the array are addressable or uniquely identifiable in some fashion. A diversity panel is the result of a method that can distinguish sequence differences between nucleic acid samples. As taught herein, a variety of methods may be used to generate diversity panels. Subsequent to the generation of the diversity panel, the nucleic acid products of the diversity panel are separated for application onto an array. The separated diversity panel is then delivered onto a substrate to create an addressable array and hybridized with labeled nucleic acids. The genotype of an organism is determined by the pattern of hybridization.